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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/350,956	07/09/1999	JEFFREY A. MILLER	0492611-0350	9008

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EXAMINER	
TRAN, MINH LOAN	
ART UNIT	**PAPER NUMBER**
2826	

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/350,956	MILLER ET AL.	
	Examiner	Art Unit	
	Minhloan T. Tran	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) *15-26 and 45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,27-44,46,47,49,52,56-61,68 and 69* is/are rejected.

7)☒ Claim(s) *48, 50, 51, 53-55, 62-67* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The Amendment filed on 03/12/2003 has been entered.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Applicants are requested to submit the copy the references disclose on pages 3, 10, 14 of the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-9, 13, 14, 27, 28, 30, 31, 35-39, 44, 46, 47, 49, 52, 56, 61, 68, 69 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hakimi et al. (5,260,957).

Hakimi et al. discloses a device comprising a primary light source 20; a population of photoluminescent quantum dots 14 disposed in a host matrix 12; wherein

each quantum dot 14 of the population comprises a core of an independently selected size and composition and the population comprises a selected size distribution of quantum dots 14; the host matrix 12 is in optical communication with the light source 20 and is disposed so as to allow the light to pass there through, thereby causing the quantum dots 14 to photoluminesce light of a color characteristic of the size, size distribution, composition, or combination thereof. The host matrix 12, that is made of polymer such as polymethylmethacrylate (PMMA), is transparent to photoluminescent light emitted by the quantum dots 14 and to the light produced by the primary light source 20. A medium 16 interposed between the primary light source 20 and the host matrix 12. The core of each quantum dots comprises a material independently selected from the group consisting of ZnSe, ZnTe, CdSe, CdTe. Note figures 1 and 3 of Hakimi et al.

It is inherent that at least a portion of the quantum dots 14 have a bandgap energy smaller than the energy of at least a portion of the light produced by the primary light source, because the quantum dots 14 are energized by the light produced by the primary laser light source 20 and the fluorescence is induced.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 10-12, 29, 32-34, 40-43, 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hakimi et al. (5,260,957) in view of Bawendi et al. (6,322,901).

Hakimi et al. discloses all the subject matter claimed except for the quantum dots comprise an overcoating of at least one material selected from the group consisting of ZnO, ZnS, ZnSe, ZnTe, CdO, CdS, CdSe, CdTe, MgS, MgSe .... However, Bawendi et al. discloses quantum dots selected from the group consisting of CdSe, CdS, CdTe having an overcoating selected from the group consisting of ZnS, ZnSe, CdS, CdSe. Note figures 1, 2 and columns 4-8 of Bawendi et al.

It would have been obvious to one of ordinary skill in the art to overcoat the quantum dots of Hakimi et al. with the overcoating such as taught by Bawendi et al. in order to obtain a photoluminescence having quantum yields of greater than 30%.

Allowable Subject Matter

5. Claims 48, 50, 51, 53, 54, 55, 62-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 03/12/2003 have been fully considered but they are not persuasive.

It is argued, at page 11 of the remarks, that "The laser system described by Hakimi does not "allow the light to pass" through the matrix in the sense of that phrase

as recited in claim 1. The device of the present invention **allows both primary and secondary light to freely pass through the matrix material and out of the device**." However, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **allows both primary and secondary light to freely pass through the matrix material and out of the device**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued, at page 12 of the remarks, that "Hakimi does not enable one of ordinary skill in the art to make a host matrix or prepolymer having QDs *dispersed* (i.e., distributed throughout the bulk without substantial flocculation) in a matrix." However, figures 1-6 of Hakimi et al. do show the QDs 14 dispersed in a host matrix 12. Further, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **distributed throughout the bulk without substantial flocculation**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued, at page 12 of the remarks, that "there is no discussion or suggestion whatsoever in Hakimi of a prepolymer, let alone a prepolymer having QDs dispersed therein, as recited in claim 36." However, figures 1-6 and lines 8-10 in column 3 of

Hakimi et al. disclose the host matrix 12 can be made of a polymer such as PMMA, and the QDs 14 dispersed in the polymer host matrix 12. Note that the precursor material of the present invention as recited in claims 36, 37 is finally reacted to form a **polymer** also. Further, in response to applicant's arguments, the recitation prepolymer has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

It is argued, at page 13 of the remarks, that "Hakimi does not provide any disclosure of how to "disperse" QDs in a matrix, as recited in claim 46." However, figures 1-6 of Hakimi et al. do show the QDs 14 dispersed in a host matrix 12. Note that claim 46 is directed to a **method of producing light**, i.e. method of operating a device, claim 46 is not directed to a **method of forming a device.** Therefore, applicant's claim 46 does not distinguish over the Hakimi et al. reference regardless of how to disperse the QDs in a matrix.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minhloan T. Tran whose telephone number is (703) 308-4919. The examiner can normally be reached on Monday-Friday 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mlt
05/2003

Minhloan T. Tran
Primary Examiner
Art Unit 2826